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This study was undertaken to determine whether a fast or a slow component of kinetics of oxygen consumption (Vo_2) during exercise at either the same absolute or the same relative work rates related to anaerobic threshold (AT) and endurance exercise performance . Eleven healthy sports-trained young males (age , 19-21 years ; Vo_{2max}, 46–59 ml/kg/min ; AT, 57-74 % Vo_{2max}) performed 6 minutes of cycle ergometer exercise at 50 % and 75 % Vo_{2max} and an endurance exercise test at , or close to , a work rate of 220 watt. Ventilation and gas exchange parameters were monitored by open circuit techniques. The time course of the increase in Vo_2 during exercise was characterized by determining the time required for Vo_2 to reach one – half its asymptotic level (half – time , T1/2). The T1/2 of the fast and the slow components of the Vo_2 kinetics were obtained from the semilogarithmic plot of the relative change of Vo_2 during exercise against time. It was found that for exercise at the absolute work rate above anaerobic threshold , the T1/2 of the fast Vo_2 component (45.4 ± 2.4 sec) was independent of the intensity of the work relative to the subjects' aerobic fitness. The same was found for the T1/2 of the slow Vo_2 component (167.4 ± 20.0 sec) except its significant relationship with the absolute work intensity expressed as %AT ($p < 0.01$). Significant correlation of endurance time with aerobic fitness level of AT relative to V_{o2max} (i.e., % Vo_{2max}) ($p < 0.05$) but not with the levels of Vo_{2max} and absolute AT(ml/kg/min) were found. At work rates requiring 75% and 50% Vo_{2max} , the fast T1/2 (43.7 ± 2.6 and 40.4 ± 2.4 sec , respectively) was also not related to the exercise intensities either expressed as % Vo_{2max} , or %AT , or %(Vo_{2max} –AT). Only the relationship of the T1/2 of the slow Vo_2 at 75% Vo2max (228.1 ± 35.8 sec) with the subjects' AT(%Vo_{2max}) was significant ($p < 0.05$). No significant correlation between endurance time and the slow T1/2 was observed. It was suggested that the mechanisms which are responsible for the Vo_2 slow component might be related more closely to the mechanisms which regulate the level of AT than to those determining the limits of Vo_{2max}. In order to use Vo_2 kinetics for qualitative assessment and quantitative assessment or classification aerobics fitness or prediction of endurance exercise performance in healthy active subjects, further investigations are required.